WHAT IS CLAIMED IS:

1.   An intruding object detecting method comprising the steps of:

inputting images of a monitoring visual field from an image pickup device;

storing said images from said image pickup device in a memory device;

calculating for each pixel a difference in luminance value between an input image from said image pickup device and each of a plurality of different images outputted from said memory device to obtain respective differential images;

adding said respective differential images, each of which is given weight with predetermined proportion to generate a synthesized differential image;

binarizing said synthesized differential image based on a predetermined threshold value to generate a binarized image; and

detecting an object in said binarized image as an object intruding within said monitoring visual field.

2.   A method according to claim 1, further comprising the steps of making and storing a reference background image of said monitoring visual field, which said object to be detected is not picked up.

3.   A method according to Claim 2, wherein one of a plurality of said different images is said reference

background image and the other images are images
obtained at different times from a time when said input
image is obtained.

4.   A method according to Claim 1, wherein said
predetermined proportion is a weighting coefficient
image.

5.   A method according to Claim 4, wherein said
weighting coefficient image is a set of said weighting
coefficient images corresponding to respective
predetermined zones obtained by dividing said monitor-
ing visual field.

6.   A method according to Claim 1, wherein said
predetermined proportion for weight given to each of
said respective differential images is selected based
on a distance from said image pickup device to an
object in predetermined zones obtained by dividing said
monitoring visual field.

7.   A method according to Claim 6, wherein said
predetermined proportion for a differential image
between said input image and the image close to said
input image is made large for a nearer zone in a
distance from said image pickup device to said object,
whereas said predetermined proportion for a differen-
tial image between said input image and the image far
from said input image is made large for a remoter zone
in a distance from said image pickup device to said
object.

8.   A method according to Claim 4, wherein said

weighting coefficient image depends on a function of
the distance from said image pickup device to said
object.

9.   A method according to Claim 8, wherein said
weighting coefficient image is a value of said
contribution rate applied to said synthesized differen-
tial image.

10.   A method according to Claim 1, wherein said
predetermined proportion for weight given to each of
said respective differential images is selected based
on an apparent magnitude of movement of an object in a
corresponding one of predetermined zones obtained by
dividing said monitoring visual field.

11.   A method according to Claim 10, wherein said
predetermined proportion for a differential image
between said input image and the image close to said
input image is made large for a zone in which said
apparent magnitude of movement of said object is large,
whereas said predetermined proportion for a differen-
tial image between said input image and the image far
from said input image is made large for a zone in which
said apparent magnitude of movement of said object is
small.

12.   A method according to Claim 11, wherein, for
a zone in which said object substantially stands still,
said predetermined proportion for a differential image
between said input image and a reference background
image is set to "1" and said predetermined proportion

for a differential image between said input image and the image other than said reference background image is set to substantially "0".

13.   An intruding object monitoring apparatus comprising:

an image pickup device for picking up an image in an image pickup region to be monitored;

an image input interface by which a video signal supplied from said image pickup device is converted into an input image;

a storage device for storing said input image through said image input interface; and

an image processing unit for processing said input image through said image input interface,

wherein said image processing unit calculates for each pixel a difference in luminance value between said input image and each of a plurality of different images from said storage device, and

wherein said image processing unit adds together the obtained respective differential images, each of which is given weight with predetermined proportion to generate a synthesized differential image, binarizes said synthesized differential image on the basis of a predetermined threshold value to produce a binarized image, and detects an object intruding within said image pickup region based on said binarized image.

14.   An intruding object monitoring apparatus

comprising:

an image input device for picking up an image in an image pickup region to be monitored;

an image input interface for receiving an input image from said image input device;

an image memory for storing said input image through said image input interface;

a program memory in which an intruding object detecting program is stored;

a processing unit for performing an intruding object detecting process in accordance with said program;

a work memory;

an alarm device for issuing a signal which is expressed as at least one of sound, visible light, vibration, rotational motion and up-down motion and which can be sensed either by a human being or by an assisting animal;

a monitor;

an output interface for transmitting an alarm display signal to said alarm device in accordance with an instruction given from said processing unit to thereby display an alarm; and

an image output interface for sending an image to said monitor in accordance with an instruction given from said processing unit,

wherein said program has a code means for calculating for each pixel a difference in luminance

value between said input image and each of a plurality
of different images from said storage device, a code
means for adding the obtained respective differential
images, each of which is given weight with predeter-
mined proportion to generate a synthesized differential
image, a code means for binarizing said synthesized
differential image based on a predetermined threshold
value to obtain a binarized image, and a code means for
detecting an object intruding within said image pickup
region based on said binarized image.